

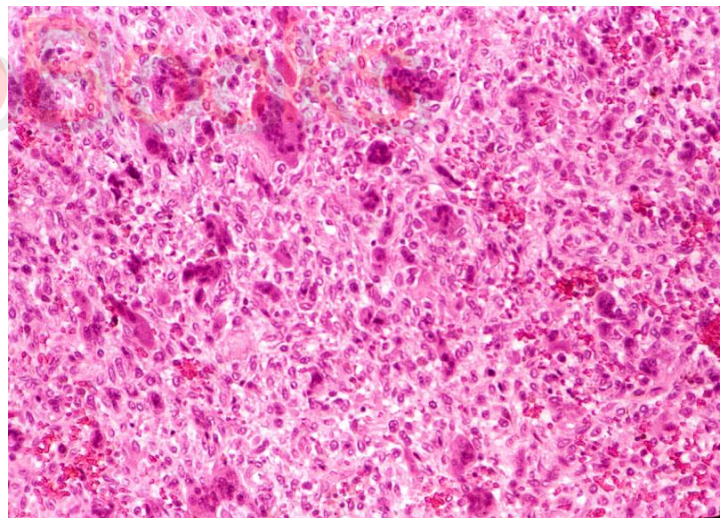
Paget's Disease and Bone Tumors

➤ Central Giant Cell Granuloma :

- Radiolucent lesion anterior to premolar region.
- More in mandible
- More in females, second and third decades of life.
- well defined , with kind of scalloping between the roots .
- Differential Diagnosis :
 - ✓ OKC
 - ✓ Simple bone cyst



- Microscopically :
 - ✓ Multi-nucleated (osteoclast-like) Giant cells with stromal cells which could be *fibroblasts* , *macrophages* or *endothelial* .
 - ✓ Vascular stroma , rich in small blood vessels .
 - ✓ Central giant cell granuloma is impossible to distinguish histologically from *hyperparathyroidism (brown tumor)* which must be excluded by biochemical investigations .
- Reactive (not tumor) , can be aggressive or non-aggressive.
- Treatment:
 - ✓ Simple enucleation and curettage or more aggressive course.



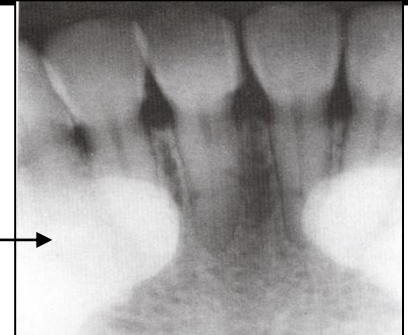
➤ *Torus Palatinus :*

- Non-neoplastic
- Can be one lobe/nodule or multilobular
- Slow growing (rarely seen in childhood)
- Aetiology :
 - ✓ Familial
 - ✓ Enviromental
 - ✓ Reactive to hymodynamic changes in the oral cavity
 - ✓ Unknown
- Clinically :
 - ✓ In construction of dentures , it needs contouring or reshaping
 - ✓ If the patient is annoyed from this torus in speech or swallowing, it may be surgically removed but other than that the patients are happy with it.



➤ *Torus Mandibularis:*

- Present above the mylohyoid line.
- 90% bilateral.
- Varies in size.
- Can correlate with bruxism.
- Clinically :
 - ✓ If disturb the movement of the tongue.
 - ✓ Sometimes it gets ulcerated due to trauma, as it is bone with thin mucosa so can be ulcerated easily.
 - ✓ Denture construction.
 - ✓ Super-imposition in Periapical Radiographs.



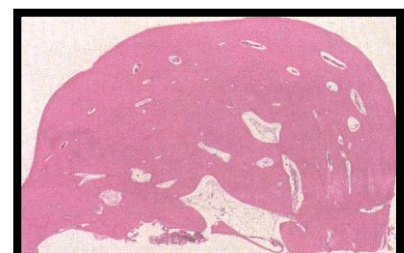
➤ *Buccal Exostosis:*

- Multiple on buccal aspects of alveolar bone.
- Maxillary (mainly)
- Concerns:
 - ✓ Aesthetic
 - ✓ Sometimes it occurs below spaces (replacing a missing tooth by bridge)



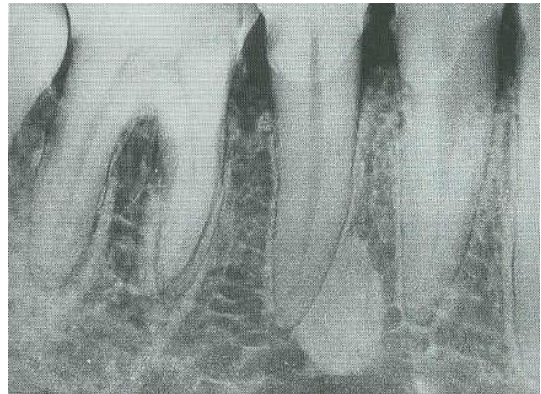
☒ *Exostosis Histopathology:*

- Compact bone or maybe Cancellous , and we can see the same appearance in Osteoma.



➤ *Dense Bone Island:*

- Unknown aetiology.
- Condensation of bone (sclerotic) .
- Premolar region of the mandible.
- Can be fused to the root
- Lack of a radiolucent rim.
- Not associated with periapical inflammation/infection
- Differential diagnosis:
 - ✓ *Cemento-osseous dysplasia*



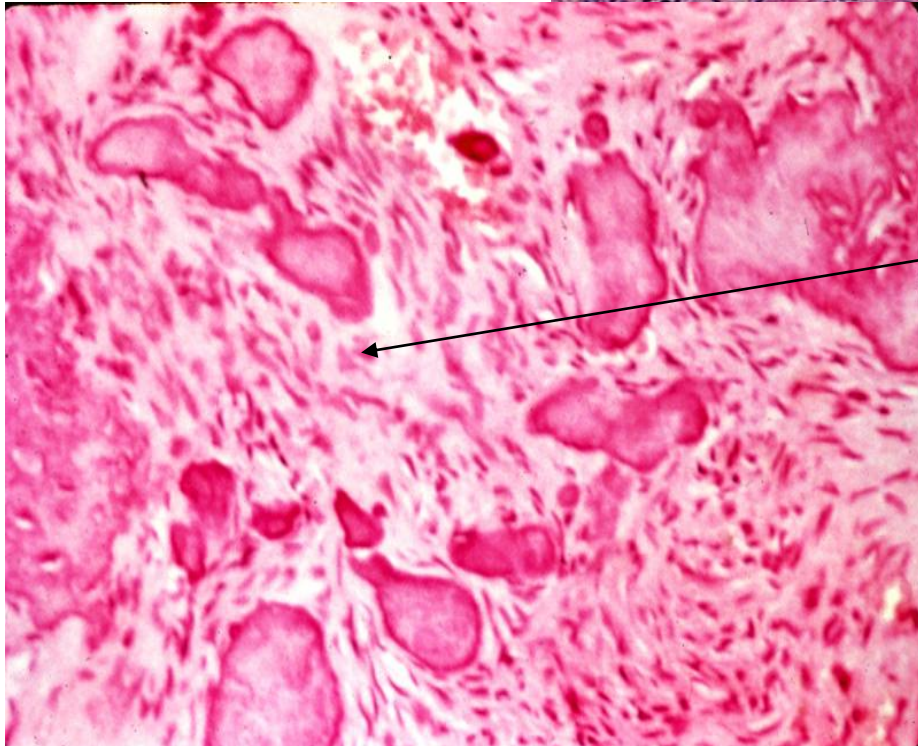
➤ *Central ossifying fibroma:*

- In the mandibular premolar-molar region there is intra-bone swelling, which occurred and persistent more than 6 months ago .
- Slowly growing
- More in males.
- Well-defined relatively.
- At time of operation ,when it's removed surgically it comes out in one piece not fragmented.
- Radiographically :
 - ✓ Well-defined Radiopaque mass
 - ✓ **It may be in the first radiolucent then mixed & at the end completely Radiopaque**
 - ✓ Not fused to the root
 - ✓ Radiolucent rim exists
- Type of lesions that produce bone



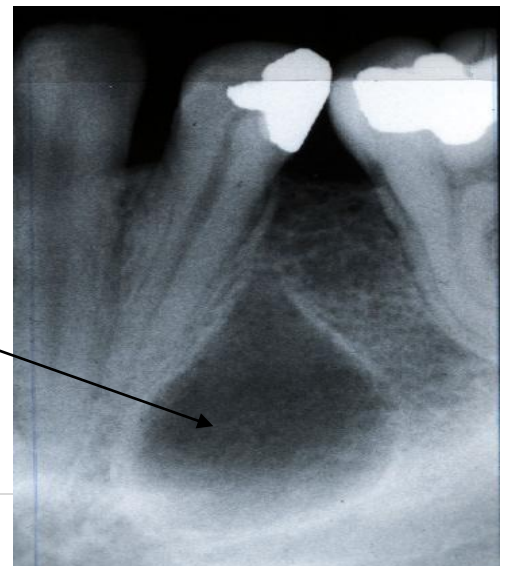
Histologically :

Bone trabeculae , osteoblastic rimming around the bone (osteocytes inside lacunae) , and fibrous stroma among them

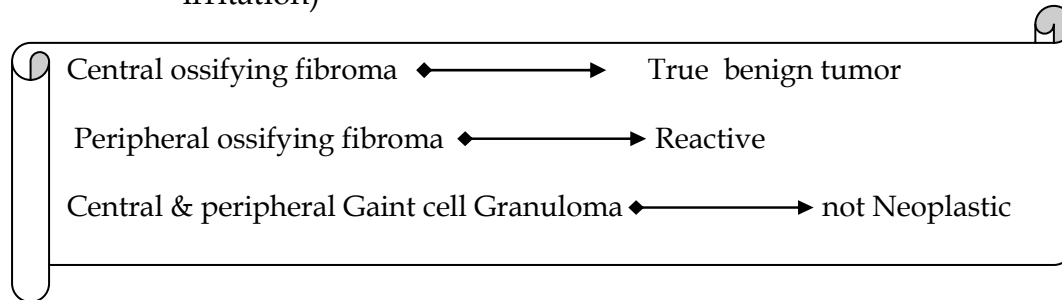


Early stage lesion :

- ✓ Radiolucent
- ✓ Very well defined
- ✓ Root displacement



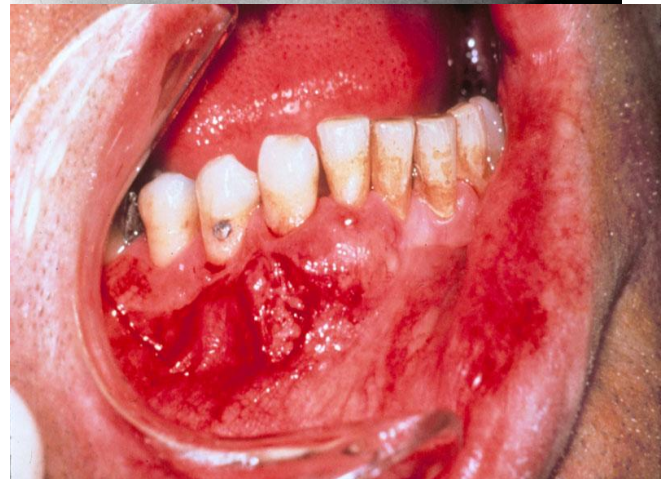
- It is a True benign tumor (not like *Peripheral ossifying fibroma* which considered as a reactive lesion due to calculus , plaque and bacteria irritation)



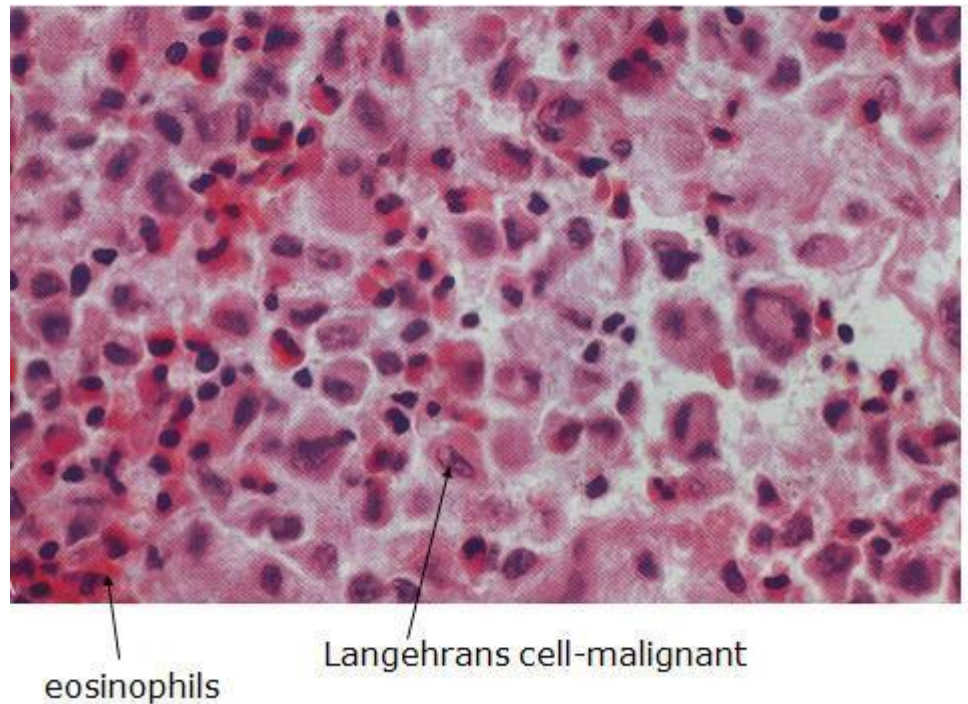
- Differential diagnosis :
 - *Fibrous dysplasia*
 - *Cemento-osseous dysplasia*

➤ *Langerhan cell histiocytosis:*

- Mobile teeth (although patient is young and have good oral hygiene).
- Ill-defined radiolucent lesion located in premolar and canine region.
- Vital teeth.
- Gingival swelling.
- Differential diagnosis :
 - *Osteosarcoma*
 - *Chondrosarcoma*
 - *Multiple myeloma*



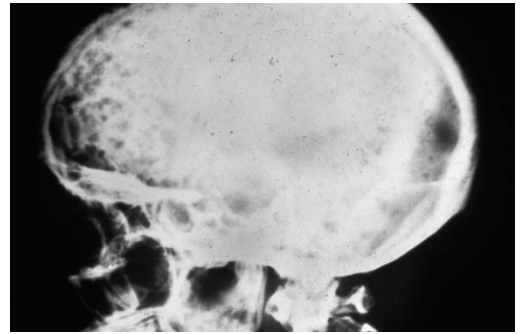
- Histologically:



- ✓ Polymorphic nuclei
 - ✓ Relatively big cells compared to other lymphocytes as they are neoplastic cells (langerhans cell-malignant)
 - ✓ A lot of eosinophils which are not neoplastic
 - ✓ *CD18 stain* is positive.
 - ✓ Eccentric kidney shaped nucleus with eccentric cytoplasm.
- 3 clinical forms:
 - ✓ Solitary
 - ✓ Multifocal
 - ✓ Fatal.
 - More in males.
 - More in mandible.
 - Treatment:
 - ✓ Curettage
 - ✓ Radiotherapy
 - ✓ Intra-lesional injection with steroid.

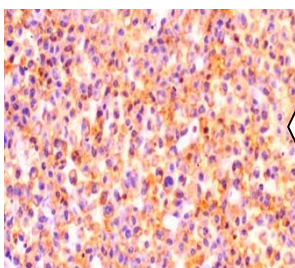
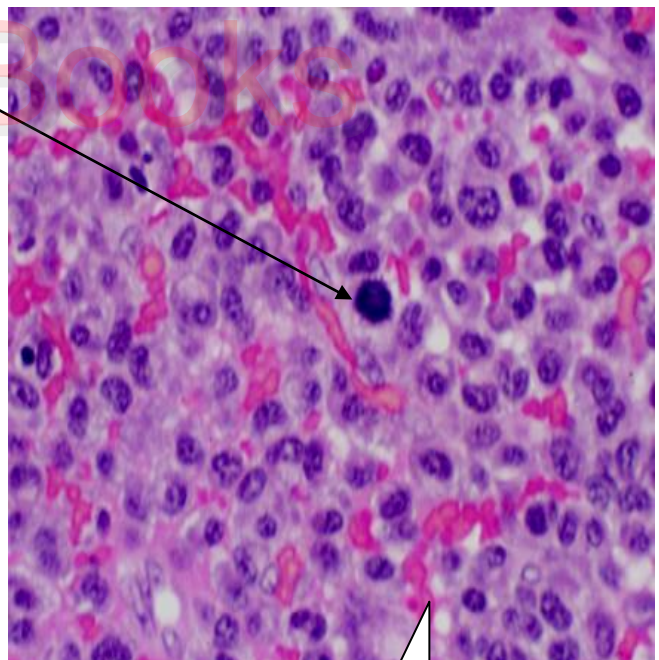
➤ *Multiple Myeloma:*

- Elderly patients.
- Low back pain .
- Punched out radiolucencies in the skull.
- Gingival swelling .
- Loosening of the teeth .
- Not always punched out appearance , this is ill-defined radiolucency surrounding the molar.

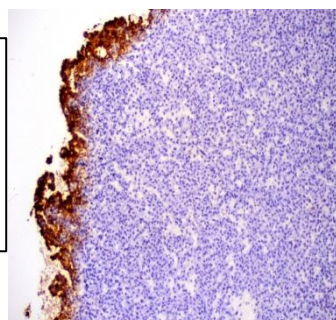


Histopathology:

- ✓ Rounded extrinsic nuclei with fragmented chromatin.
- ✓ Malignant Plasma cells (abnormal mitotic figures , polymorphism and hyper chromatin) .
- ☒ Immunohistochemistry kappa & lambda stains for investigating a monoclonal proliferation (producing only one light chain) .



Immunohistochemistry kappa light chain (**positive**)



Immunohistochemistry lambda light chain(**negative**)

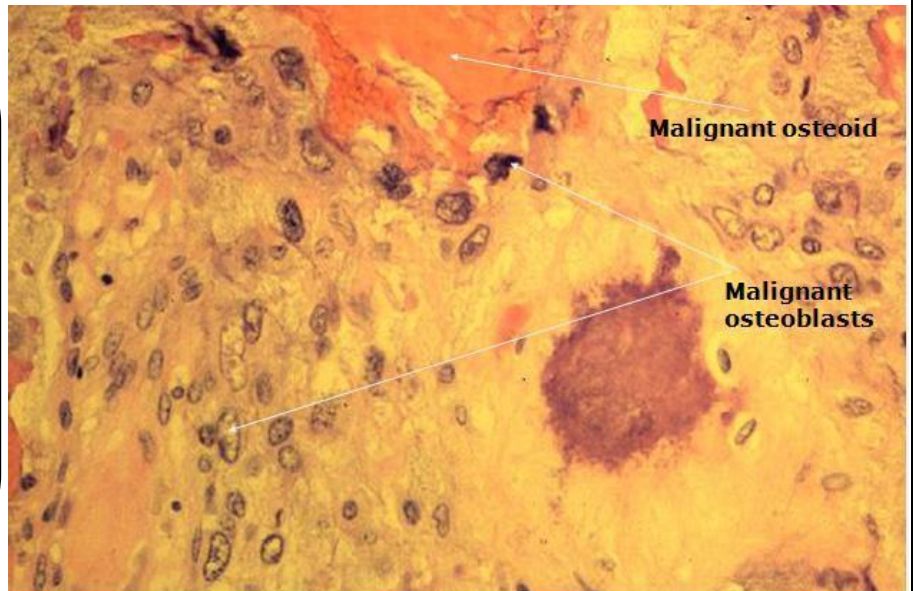
- Other investigations :
 - ✓ Electrophoresis : *Bence-Jones Proteins*
 - ✓ Amyloidosis: intraorally(macroglossia) , due to accumulation of Amyloid within tongue tissue so become larger

➤ *Osteosarcoma :*

- Malignant tumor of bone
- loosening of the teeth
- radiolucent area with sun-ray pattern
- malignant osteoblasts : hyperchromatic nuclei & pleomorphic cells

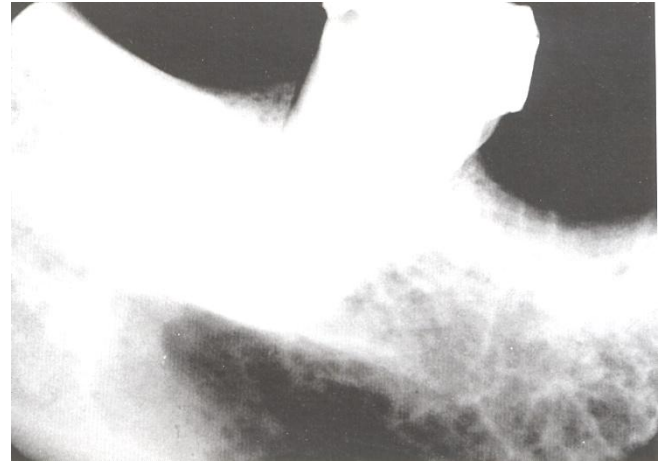


- *Malignant osteoblasts :* hyperchromatic nuclei & pleomorphic cells
- *Malignant osteoid :* malignant bone which is produced by malignant osteoblasts

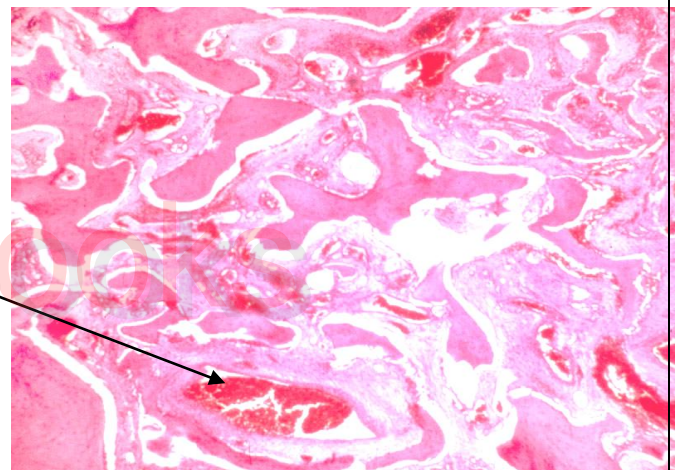


➤ *Hemangioma :*

- Mixed radiolucent and radiopaque (looks like honey-comp appearance)
- Causing expansion of the mandible lingually and buccally
- Differential diagnosis :
 - *Aneurysmal bone cyst*
 - *Myxoma*

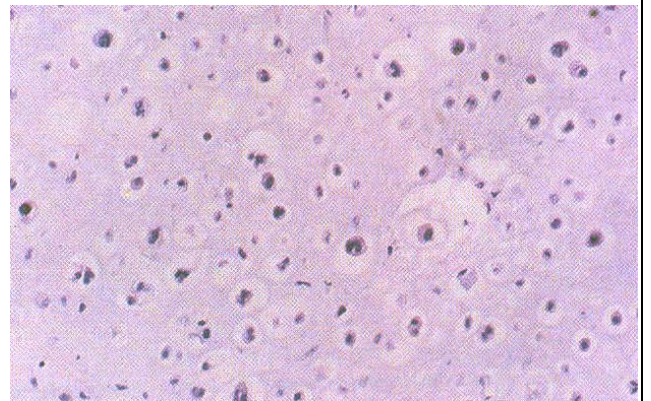
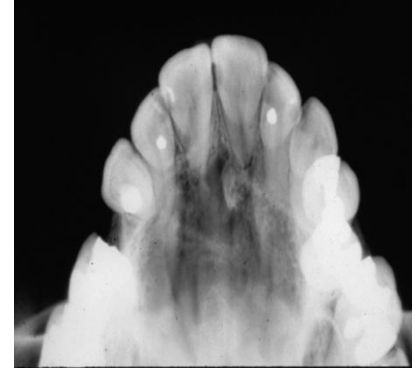


- *Aspiration* to check if there is blood
- Histologically :
 - Cavernous blood spaces (Cavernous not capillary because it is inside the bone)



➤ *Chondrosarcoma* :

- Ill defined radiolucency in the anterior part of the maxilla
- Remnant of cartilage.
- Differential diagnosis :
 - *Osteosarcoma*
 - *Langerhans cells*
 - *Multiple Myeloma*
- Histologically :
 - ✓ *Chondroid* (light blue)
 - ✓ Glassy-like appearance
 - ✓ Small cells in their lacunae
 - ✓ Hyperchromatic pleomorphic mitotically active
 - ✓ Sometimes bi-nucleated



Tumors is known by its products :

Squamous-cell carcinoma → keratin

Osteosarcoma → osteoid

Chondrosarcoma → cartilage

➤ *Osteoma:*

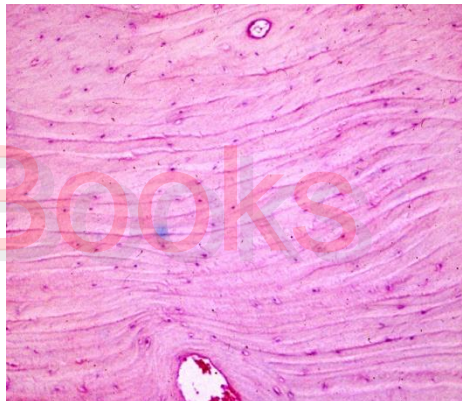
- Benign tumour of bone.

☒ The best location:

- Hard swelling at angle of mandible
- Radiopaque mass at angle of mandible



- Histologically :
 - ✓ Compact bone

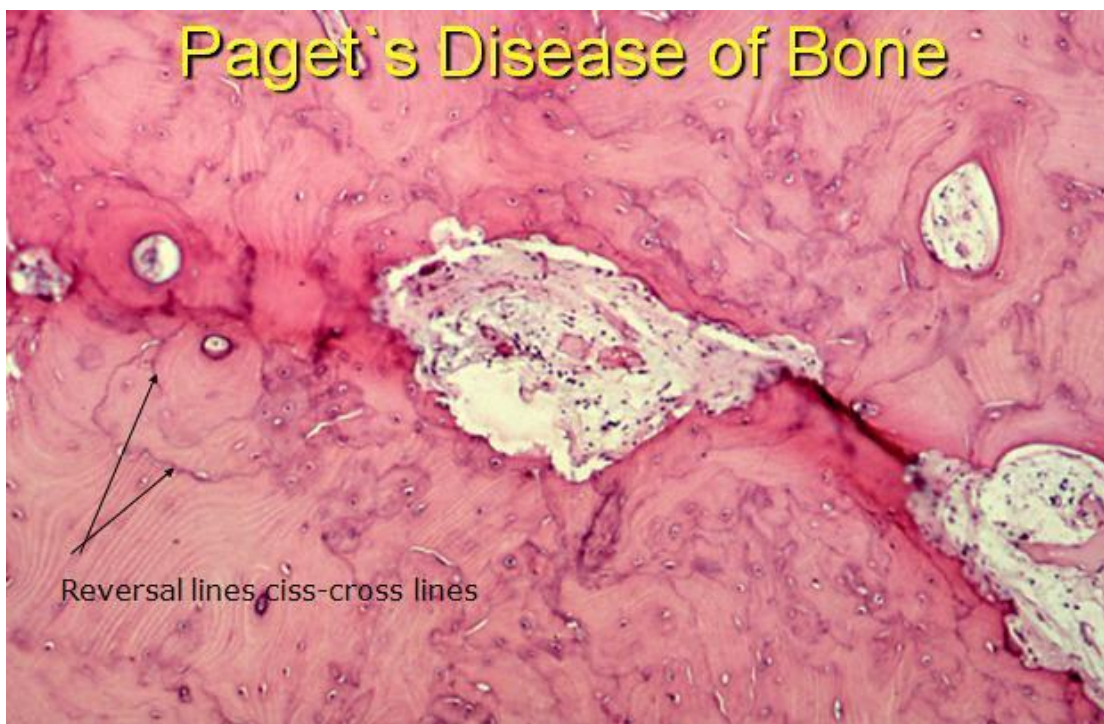
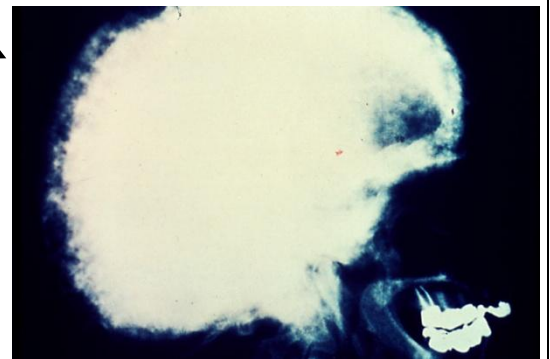
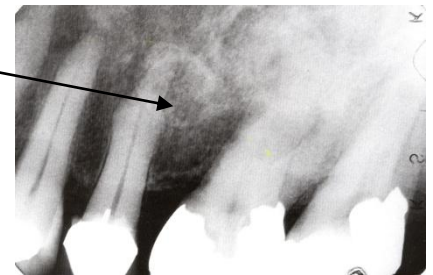


Patient got colonoscopy & they found some masses on the colon which were removed >> Polyposis coli (which is premalignant for adenocarcinoma)

Gardener syndrome

➤ *Paget's Disease of Bone :*

- Deformity of weight-bearing bone
- Enlarged skull
- Elderly male
- Spaced teeth with *Retroclination & Palatoversion* →
- Flat palate
- Radiographically :
 - ✓ Patches , cotton wool appearance →
 - ✓ Hypercementosis & dense bone areas
 - ✓ Can't distinguish diploe →

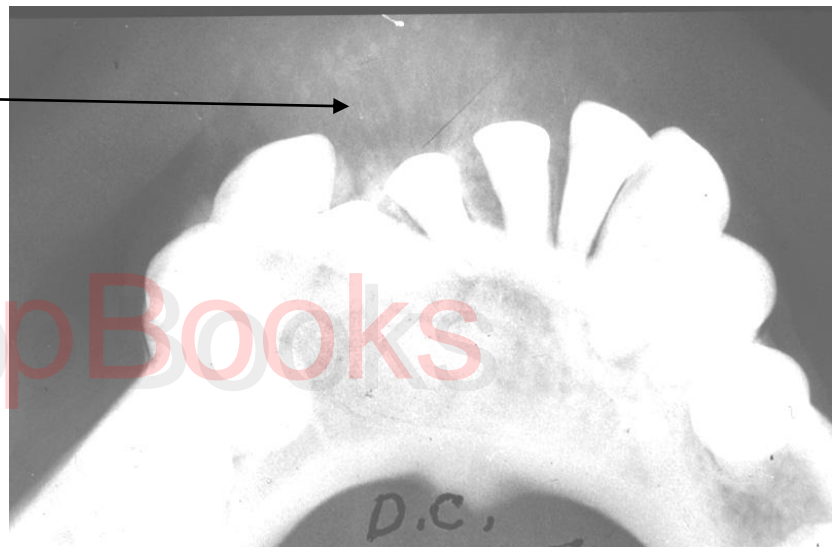


Reversal line >>
Mosaic pattern

Reversal lines ciss-cross lines

The 3 phases are overlapping , no clear cut between them

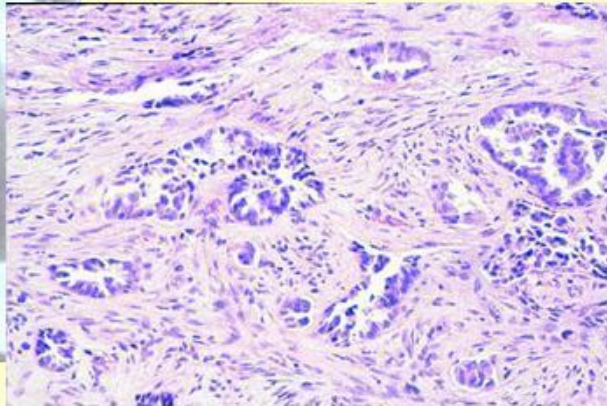
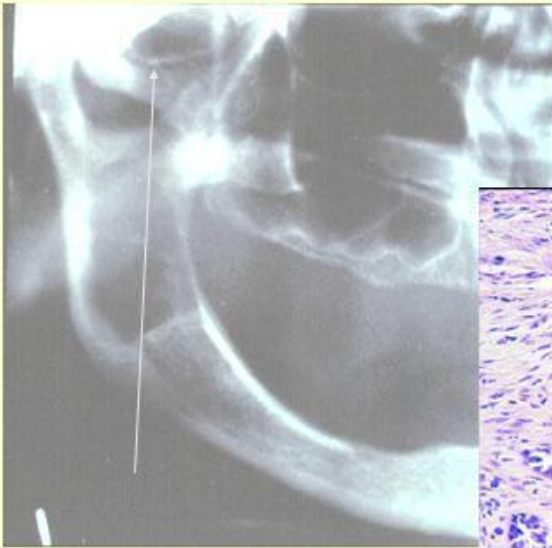
- ✓ Sun-ray appearance in 25% of *Osteosarcoma*
- ✓ <1.0% of paget's disease will have osteosarcoma & other bone tumors



When you see a radiolucent lesion that you don't really know .. refer it

Because may be it is metastatic tumor from glandular source (*prostate*) & not only an *idiopathic bone cavity*

Metastatic carcinoma

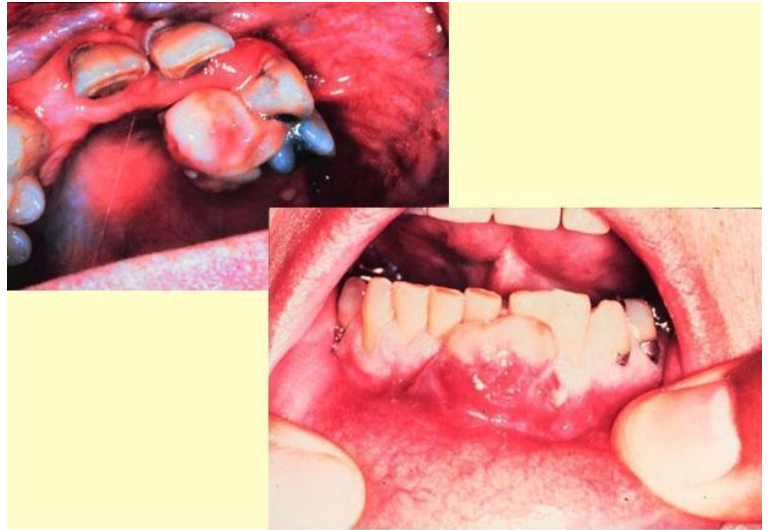


- Most metastatic tumors in oral cavity are from :
 - ✓ Breast
 - ✓ Prostate
 - ✓ Bronchus
 - ✓ Kidney
 - ✓ Lung
 - ✓ Thyroid
- Some osteoblastic & some osteolytic

This may confused with *Dense Bone Island* , so we ask for a biopsy



- Metastasis may appear on soft tissue (gingiva) as they are rapidly growing we may think *Pyogenic granuloma* as it is a reactive rapidly growing aggressive lesion
- Lesions on gingival should be considered carefully as may be metastasis



DropBooks

When you find yourself
In some far off place
And it causes you
To rethink some things
You start to sense that slowly
You're becoming someone else
And then you find yourself ^_^

Best regards

Done by :
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Maher Mahmoud